

WHAT IS CLAIMED IS:

- 1           1.     A deformable mirror comprising:  
2                     a vertical comb drive; and  
3                     a reflective surface attached to said vertical comb drive.
  
- 1           2.     The deformable mirror according to claim 1, further comprising  
2     a spring for biasing said vertical comb drive to maintain said reflective surface  
3     in an original position absent application of a voltage to said vertical comb  
4     drive.
  
- 1           3.     The deformable mirror according to claim 1, wherein said vertical  
2     comb drive comprises a first array of stationary elements and a second array of  
3     moving elements correspondingly interspersed with said first array, said  
4     reflective surface being attached to said second array.
  
- 1           4.     The deformable mirror according to claim 3, further comprising  
2     a layer covering tops of elements of said second array.
  
- 1           5.     The deformable mirror according to claim 4, a spring for  
2     suspending said first array relative to said second array, said spring being  
3     attached to said layer.
  
- 1           6.     The deformable mirror according to claim 3, wherein said  
2     stationary elements and said movable elements are circular.

1           7.     The deformable mirror according to claim 3, wherein said  
2     stationary elements and said movable elements are planar.

1           8.     The deformable mirror according to claim 4, wherein said layer  
2     is attached directly to said reflective surface.

1           9.     The deformable mirror according to claim 4, further comprising  
2     a post attaching said layer to said reflective surface.

1           10.    The deformable mirror according to claim 9, wherein said post  
2     is in a center of said reflective surface.

1           11.    The deformable mirror according to claim 3, wherein voltage is  
2     applied to each stationary element of said first array individually or each moving  
3     element of said second array individually.

1           12.    The deformable mirror according to claim 3, wherein said vertical  
2     comb drive comprises an array of vertical comb actuators.

1           13.    The deformable mirror according to claim 12, means for  
2     individually providing voltage to each actuator of said array.

1           14.    The deformable mirror according to claim 12, further comprising  
2     springs for individually suspending each of said second array of each actuator  
3     in said array.

1           15.    The deformable mirror according to claim 14, further comprising  
2     an anchor for supporting said springs.

1           16.     The deformable mirror according to claim 1, wherein said vertical  
2     comb drive comprises plurality of cavities and teeth interdigitally mounted with  
3     said cavities, said reflective surface being attached to said teeth.

1           17.     The deformable mirror according to claim 16, further comprising  
2     a top layer between the teeth and the reflective surface.

1           18.     The deformable mirror according to claim 16, further comprising  
2     a conductor for individually connecting each tooth of said teeth to a voltage  
3     source.

1           19.     A method of deforming a mirror comprising:  
2                   attaching the mirror to a vertical comb actuator; and  
3                   applying a voltage to the vertical comb actuator.

1           20.     The method according to claim 19, wherein said vertical comb  
2     drive comprises an array of vertical comb actuators and said applying  
3     individually applies voltage to said vertical comb actuators.